

## TWO MIGRATORY THRUSHES AND THE AFRICAN PITTA IN COASTAL KENYA

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The movements of many intra-African migrants are now well documented, especially at higher latitudes where they form an important element in the avifauna, typically arriving with the summer rains and breeding during these wet months. In Kenya, which straddles the equator, movements of many species are obscure and often overlooked. Contrary to popular belief, many tropical environments are highly seasonal, though forest habitats are comparatively equable. Coastal Kenya is the most southerly part of the country, at 2-5°S., but with April-July rains rather than the typical November-April pattern of the southern tropics (Griffiths 1958).

This paper presents data on three species which reside in the forests of coastal Kenya during and after these wet months: the Red-capped Robin-Chat *Cossypha natalensis*, the little known Spotted Ground Thrush *Turdus fischeri fischeri*, and the seldom observed African Pitta *Pitta angolensis longipennis*. G.B.R. was resident at Gedi Ruins, south of Malindi and adjacent to the Arabuko-Sokoke (=Sokoke) Forest, from April 1971 to December 1972, studying the elephant-shrew *Rhynchocyon chrysopygus*. During this time, and on later study visits, he made incidental observations on the forest birds, especially species dwelling on or close to the ground. P.L.B. has lived near Mombasa since May 1973, and has made numerous visits to Sokoke Forest during this period and earlier.

*COSSYPHA NATALENSIS*

Data available to Britton (1971) suggested that this robin-chat is mainly absent from the Kenya coast between January and April, with only 6 per cent. of records in this four month period. At the time he considered the possibility of any movement speculative in the absence of an obvious ecological explanation. Recent data in Tables 1 and 2 confirm that it is present only from late April or early May to November or early December.

TABLE 1

*Extreme dates of occurrence of Cossypha natalensis, Turdus fischeri and Pitta angolensis at Gedi (1971, 1972), and of C. natalensis at Sokoke Forest and Bamburi (1973-1977)*

Species	year	arrival	departure	
<i>C. natalensis</i>	1971	13 May	23 November*	*GER absent for a
	1972	21 April	23 November	few weeks after
	1973	4 May	24 November	this date.
	1974	16 May	17 November	+PLB on overseas
	1975	9 May	24 October+	leave from
	1976	1 May	12 December	28 October.
	1977	22 April	26 November	
	1974	24 April	19 November#	#data from Bamburi
	1977	11 May	23 November#	(see text)
<i>T. fischeri</i>	1971	27 May	23 November*	
	1972	20 April	20 November	
<i>P. angolensis</i>	1971	9 June	6 November	
	1972	22 April	22 October	

The data from Bamburi (near Mombasa) are based on twice-monthly ringing visits by H.A. Britton and P.L.B. to thicket on coral rag. This habitat,

previously forest and now mainly secondary growth thicket and scrub, is important as a habitat for this species, occupying as much as 400 km<sup>2</sup> (Moomaw 1960), approximately the same area as Sokoke Forest. In remnant forest alongside his house near Bamburi, P.L.B. hears this species only between May and November, and in his few visits to the Kaya forests near Ribe (inland from Mombasa) he did not record it in March but found it very common in May. J. Squire (*in litt.*) found it common in Jadini Forest south of Mombasa in August 1975, but found very few in April 1975. M. Heath (*in litt.*) recorded it daily in her garden at Malindi; 13 April - 19 November 1977, and noted its absence after 5 November 1975 and 18 November 1976. The evident absence of this species between December and April is especially striking as it is so numerous when present; it is the commonest ground bird at Gedi and the most frequently caught bird in most of the coastal forests worked by P.L.B.

TABLE 2

*Numbers of Cossypha natalensis captured at two localities in coastal Kenya in different months*

	J	F	M	A	M	J	J	A	S	O	N	D
<b>SOKOKE</b>												
birds	-	-	-	-	5	15	23	23	21	13	5	2
Net-hours	112	200	174	110	55	80	120	800	175	110	80	164
<b>BAMBURI</b>												
birds	-	-	-	1	4	4	3	4	2	1	1	-
Net-hours	135	100	125	135	85	85	65	75	85	80	100	70

*Notes:* net-hours refer to 3 or 4 panel mist-nets of length 60 feet (about 18 m) set by P.L.B., evening and early morning only, except in August at Sokoke when nets were usually open throughout four day periods (closed only at night).

Rainfall figures from Gedi over a 30 year period show that the five months November-March are on average the driest, with virtually no rain in January and February, so that food might be expected to be scarce in these months. However, data on invertebrate abundance in the leaf litter of Sokoke Forest do not support this view. G.B.R. considers it possible that his sampling technique, with ten samples each month, may not be fine enough to fairly reflect the food of this species. Compared with the *Turdus* and *Pitta* it is a generalized feeder which will hawk insects, glean leaves, scrape in the leaf litter and feed on insects flushed by driver ants *Dorylus* spp. and elephant-shrews (Elliott 1950, Rathbun 1976) or exposed by *Turdus fischeri* (M. Robbins *in litt.*).

Dates of occurrence on the Kenya coast suggest a southerly origin, like that of the African Golden Oriole *Oriolus auratus*, Pygmy Kingfisher *Ceyx picta natalensis* and Black Cuckoo Shrike *Campephaga flava*, which breed in the southern tropics and spend part or all of the off-season in coastal Kenya (Jackson 1938, Britton 1973, Britton & Britton 1974). It is, however, still numerous in coastal Kenya in September-November, when it is also at its most numerous in Zambia (Britton 1971). Available data suggest that it breeds in coastal Kenya. Well-developed song is heard only in May and June when there are other clear signs of territoriality, and the majority of partly spotted immatures are caught in August and September (never in May). The only bird moulting remiges had almost completely replaced its primaries on 22 June, and these had been fully replaced when

retrapped on 21 July. It is extremely unlikely that both breeding and moult could take place during the species' absence from coastal Kenya, as a complete moult of the remiges of the African passerines handled by P.L.B. takes a minimum of 4 - 5 months.

Racial differences recognized by Clancey (1959) and Benson *et al.* (1971), show that Kenya birds do not originate from inland sites at higher elevations, whether in Kenya (e.g. Teita) or farther south (e.g. Zambia). Coastal Kenya birds are referable to *C.n. intensa* which occupies coastal areas from Somalia to Mozambique. The lack of a pattern of occurrence in coastal Tanzania led Britton (1971) to suggest that some coastal Kenya birds might spend December-April along the lower Tana River (Kenya) and the lower Juba River (Somalia), where records were confined to January-March and June. Later J.F.M. Horne (*in litt.*) saw an adult feeding an immature (out of the nest) on 31 August 1972 in gallery forest on the lower Tana, and P. Agland (*in litt.*) saw six on the lower Tana near Mnazini on 28 February 1976. P.L.B. recorded none in gallery forest near Garsen on 25-26 February 1977 though he saw and heard many there in August 1972. It is likely that some Tana birds are resident, though some may move south to Sokoke and other coastal areas in the rains, when the ground in gallery forests might be waterlogged or inundated in some years. However, the area of gallery forest along the lower Tana is only a small fraction of the area of Sokoke Forest, and is probably less than 1 per cent. of the area occupied by this species in coastal Kenya (see figures in Andrews, Groves & Horne 1975).

Thus the location of coastal Kenya birds in the dry months of December to April remains a mystery which is unlikely to be solved except by ringing recoveries. There is a dearth of records from any part of its range during these months, except for eastern Rhodesia, where *C.n. hylophona* is a breeding visitor at this season, wintering in the Mozambique lowlands (Britton 1971). The virtual lack of records from Mozambique north of 16°S. is unlikely to represent a real absence, as there has been very little collecting in this large tract of country (Hall & Moreau 1970, Map A). It is possible that coastal Kenya birds spend the period December-April further south in coastal Tanzania and Mozambique, where rain is plentiful at this season. It is noteworthy that coastal birds mimic the call of the Emerald Cuckoo *Chrysococcyx cupreus* which is not recorded from the Kenya coast or the lower Tana River, nor anywhere within 150 km of Sokoke Forest.

#### TURDUS FISCHERI FISCHERI

This small race of the Spotted Ground Thrush is endemic to Kenya coastal forests and Pangani in coastal Tanzania; between 1885 and 1964 it was only recorded twice (Keith & Twomey 1964). It was considered a very rare bird until G.B.R. found it to be seasonally numerous in the 44 ha forest reserve at Gedi, where it is probably the third most numerous bird on the forest floor (outnumbered by *Cossypha natalensis* and probably by the Eastern Bearded Scrub Robin *Cercotrichas quadrivirgata*). There is reason to believe that it occurs at a far greater density in the ruined city than in the neighbouring Sokoke Forest; 3-5 birds are routinely reported at Gedi on a morning walk (many observers) yet it is very rarely seen in Sokoke Forest which P.L.B. and others have worked thoroughly in recent years. At Gedi it is possible that the accumulated detritus from the prolonged occupation of the city over a period of about 300 years might have significantly improved the feeding opportunities for this species (and influenced the composition of the forest trees, Rathbun 1976). Equally well it might favour wetter areas occupied by lowland rain forest, with

a mean annual precipitation of over 1000 mm (Moomaw 1960), rather than the drier forest types which form the bulk of Sokoke Forest. Early records are from coastal localities with high rainfall at Lamu, Kipini, Mambrui and Pangani (Fischer 1879, Hellmayr 1901, Jackson 1938); and it was numerous in forest on coral rag at Jadini in August 1975 (J.Squire *in litt.*) and at Shimoni in early September 1976 (four seen, one netted, P.L.B.). Unlike the Sokoke Forest, Gedi Ruins are on coral rag, and it may in fact have a preference for the uneven ground characteristic of coral rag forests.

Gedi dates in Table 1 show that it is present during the same period as *Cossypha natalensis*, from April or May to November. Dated records for this race from throughout its range are summarized in Fig.1, using Burrell & Abel (1976), Fischer (1879), Hellmayr (1901), Irvine & Irvine (1977a,b) and Keith & Twomey (1968), as well as records supplied by G.C.Backhurst, L.Campbell, P.R.Colston, C.F.Mann, D.J.Pearson, H.Pelchen, J.Squire and D.A.Turner. Birds in thicket at Bamburi might have been on passage. All records fall in the period late March to late November (no precise date is available for the March bird at Sokoke).

	M	A	M	J	J	A	S	O	N
Kipini			•		•				
Gedi			—————						
Sokoke	o	••	o o o			• o o o o o o	• •		
Bamburi		••	•						
Jadini				••••••••••		••••		•••	
Shimoni							••		
Pangani						•			

Fig.1 All records of *Turdus fischeri fischeri*: filled circles (and the continuous line) represent dated records; open circles are records for which only the month is known

Moreau (1966) described movements of southern African *T.f.natalicus* mostly in the Durban area, and Hall & Moreau (1970) note that South African birds are migratory, breeding south of 30° S. and moving north in winter. The evident movements of *T.f.fischeri* are nevertheless unexpected. It has never been recorded south of Pangani or north of Lamu, always below 60 m a.s.l., so that it is difficult to suggest where it might reside from December to April, a period for which there are only two records, both in March. Movements to the gallery forests along the Tana River seem unlikely as it is unrecorded there except at the mouth. The few birds handled for ringing were not moulting remiges, but there are no other data suggestive of breeding in coastal Kenya, and three out of four recorded sub-adults were in April-May, which suggests that breeding takes place elsewhere.

Data available indicate that this is exclusively a ground feeder, so that movements away from the Kenya coast in months when food is readily



available in the leaf litter are surprising; its diet includes millipedes *Prionopetalum* sp. and ants (A.D.Forbes-Watson pers.comm., Burrell & Abel 1976).

Wing-lengths of *T.f.fischeri* and *T.f.natalicus* given by Keith & Twomey (1968) did not overlap. More recent data, together with their data and those of Fischer and Hellmayr, give wing-lengths of 17 birds as 108-119 (mean 112.6 mm) which overlaps with the larger *natalicus*, though the mean for *natalicus* is 119.7 mm. Weights of four sub-adults were 51.6, 52, 53.5 and 55.5 g, while adult weights were 54, 54, 54, 56, 56, 58.1, 59, 59 and 65.4 g.

#### *PITTA ANGOLENSIS LONGIPENNIS*

Benson & Irwin (1964) have described the movements of this pitta in eastern Africa and have shown that it a long-distance migrant breeding south of 8°S. during the southern rains and migrating north to the vicinity of the equator (north to 4°N. in Zaïre) during April-September. Most information on this species comes from exhausted or perished migrating birds, and it was Sclater & Moreau (1933) who first suggested that it might be a migrant owing to the frequency with which it was attracted at night to lighted windows at Amani in northeastern Tanzania in May. All five Kenya records given by Benson & Irwin (1964) are of such birds, in the vicinity of Nairobi between late April and June; and there are three subsequent Nairobi records on 18 May 1964, 27 May 1976 and 7 August 1967, the last in a year of atypical weather (Brown 1970, National Museum collection).

The dates in Table 1 show that this pitta is present at Gedi over roughly the same period as the two species already discussed, except that it probably leaves earlier in November. Arrival and departure dates are less reliable than for these other species because of the low density of the pitta and the likelihood of overlooking it. Published records from the Kenya coast are of collected birds in Sokoke Forest on 19 and 25 July 1965 (Ripley & Bond 1971), an injured bird picked up on the road at Diani in October 1965 (Black 1970), and one seen in Sokoke Forest on 23 June 1970 (Horne 1971). In late August 1975, J.Squire (*in litt.*) recorded it twice in Jadini Forest, where G.B.R. saw one on 5 June 1976 and Irvine & Irvine (1977a) saw one on 10 October 1976; Squire also saw one at Gazi on 22 August 1975. One given a red ring by G.B.R. at Gedi on 24 September 1972 was seen regularly until 22 October, and was seen again in the same vicinity on 27 October 1973 and 17 - 21 June 1974 (for full details of home range see Rathbun 1978). G.B.R. and T.Huels saw one on at least 20 occasions at Gedi on 23 - 25 August 1975. The only subsequent Gedi dates are 11 October 1976 (D.Costiche *in litt.*) and 12 - 16 June 1977 (M.Heath *in litt.*); a bird seen by P.L.B. on 12 August 1977 is the only recent Sokoke Forest record. Despite the presence of two females with enlarged ovaries in July 1965 (Ripley & Bond 1971) it is highly unlikely that pittas breed in Kenya, especially as all 121 sightings at Gedi in Rathbun (1978) were of solitary, silent birds - breeding birds often reveal themselves by their loud calls (Harvey 1938).

It is interesting that this pitta should winter on the Kenya coast as far south as Jadini (4°19'S.) and Gazi (4°25'S.) when to the west it has been recorded on passage considerably further north, for example at Nairobi (1°17'S.). An interesting northern Tanzania record additional to the May records at Amani (5°06'S.) in Benson & Irwin (1964) is of a bird found dead at Ngorongoro Crater (3°10'S.) on 28 May 1970 (Gerhart 1970). Other Tanzania records are from further south: on southward passage

between 9 November and 1 December; coastal breeding birds at 9-10°S. between 16 November and 27 February, including eggs collected on 22 December; and an anomalous sighting in the Rukwa valley at 7°41'S. on 11 July 1958 (Benson & Irwin 1964, Burke 1969, Harvey 1938, Stjernstedt 1970). In Zambia it is a breeding visitor from late October or early November to March or April (Benson, Brooke, Dowsette & Irwin 1971). All but four of the 35 records from Rhodesia in Benson & Irwin (1964) and Benson, Brooke, Dowsett & Irwin (1970) are for the period 10 November - 24 December, when they were on southward passage; and there is a similar pattern of occurrence in Malawi (Benson & Irwin 1964, Harrison 1966).

Uganda is evidently a wintering area, with all seven dated records between 28 May and 31 July; west of Uganda there are records from north of the equator between 28 May and 21 September, and there is evidence of passage in eastern Zaïre in April and May (Benson & Irwin 1964). A bird collected near Addis Ababa at 9°03'N., 2440 m a.s.l., on 3 July 1970 was 900 km north of any previous record (Urban & Hakanson 1971). Birds residing in the more equable coastal lowlands of eastern Africa may well migrate only comparatively short distances from breeding areas in northern Mozambique or southern Tanzania to a wintering area in the forests of coastal Kenya. Birds nesting at higher elevations inland probably travel as much as 1500 - 2000 km from breeding area to wintering area.

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